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U.S. Department of the Interior • U.S. Geological Survey

# MINERAL INDUSTRY SURVEYS

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Gordon P. Eaton, Director

Reston, VA 20192

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For information, contact:

Jozef Plachy, Commodity Specialist

Telephone: (703) 648-4982, Fax: (703) 648-7757

E-mail: [jplachy@usgs.gov](mailto:jplachy@usgs.gov)

Stephen M. Jasinski (Data), (703) 648-7955

MINES-DATA: (703) 648-7799

MINES FaxBack: (703) 648-4999

Internet: <http://minerals.er.usgs.gov/minerals>

## ZINC IN OCTOBER 1996

Domestic mine production declined for the third consecutive month. October production was nearly 2% lower than the previous month's production and about 10% lower when compared with production in October 1995. Smelter production increased by nearly 5% over that of September, and about 10% above production in October 1995. Apparent consumption fell by nearly 12% below the previous month's consumption, but was about 10% higher than in October 1995.

The *Platt's Metals Week* composite price for North American Special High Grade zinc in October was slightly higher than in September and nearly 4% higher than a year before. Premiums added to the London Metal Exchange (LME) base price for refined zinc were about a half-cent higher than they were in September. Higher demand for refined zinc was fueled mainly by strong demand

for galvanized steel, primarily for the automotive and construction industry. With premiums approaching 7 cents per pound, imports of refined zinc could become a viable alternative to domestic production. However, some foreign producers, responding to falling LME stocks, increased their prices, making them relatively less competitive with U.S. producers.

Metal Recovery Technologies Inc., using new dezincing technology developed in cooperation with the American Iron & Steel Institute and the U.S. Department of Energy, opened a new plant in East Chicago, Indiana, on October 1. The new process involves washing galvanized steel scrap in two consecutive rolling drums containing a solution of sodium hydroxide to dissolve the zinc, which is then removed from solution by electrowinning. Over the next 3 years, annual production is expected to reach some 30,000 tons of zinc, based on the treatment of about 900,000 tons of scrap.<sup>1</sup>

The Greens Creek polymetallic underground mine on Admiralty Island near Juneau, Alaska, which was closed in 1993, reportedly has been recommissioned. The mine is jointly

owned by Kennecott Greens Creek Mining Company (70.3%) and Hecla Mining Company (29.7%). During the 2-year closure, exploration efforts successfully identified a high-grade ore deposit called the Southwest Zone. Redevelopment began in 1995, and the first shipment of concentrate is anticipated by December 1996; full production is expected to commence in the first quarter of 1997. Planned production is expected to yield about 38,000 tons of zinc in concentrate, plus silver, gold, and lead. The total reserves should give Greens Creek a 17-year mine life at projected production rates.<sup>2</sup>

Toronto-based Noranda Inc. approved a \$32 million investment for improvement of the hydrometallurgical process at its Electrolytic Zinc Refinery in Valleyfield, Quebec. The changes are expected to increase production capacity by 11%, to 250,000 tons of refined zinc annually.<sup>3</sup> Big River Zinc Corp., acquired by Korea Zinc Co. in April 1996, plans to increase capacity of its Sauget refinery in Illinois by 32,000 tons while maintaining better environmental control.<sup>4</sup>

ASARCO Incorporated, on the other hand, has decided to suspend operation at two mines, the New Market Mine in Tennessee and the Leadville Mine in Colorado. According to a news release dated July 31, 1996, the New Market mine and mill was put on care and maintenance status on September 30, affecting 115 people. The mine and mill processed about 3,000 tons of zinc ore per day. Asarco decided to suspend operations at its polymetallic Leadville Mine by December 31; the mill had been shut down in August. Last year, the Leadville Mine produced about 15,400 tons of zinc, 5,000 tons of lead, and 9.8 tons of silver.<sup>5</sup>

Denver-based Atlas Corp. completed the purchase of Arisur Inc., which owns and operates the Andacaba and Don Francisco silver-zinc-lead mines in southern Bolivia. An expansion of Andacaba's mining and milling operation is already under way. When completed in early 1997, the capacity of the mill will have

been nearly doubled to 400 tons per day, large enough to accomodate ore from both mines. By 1998, combined annual production from the two mines is expected to reach 34 tons of silver, 17,400 tons of zinc, and 2,700 tons of lead.<sup>6</sup>

Outokumpu of Finland has begun mining the recently discovered Mullikkoräme deposit in central Finland. Proven reserves reportedly amount to 700,000 tons, grading 8% zinc, with byproduct lead, copper, silver, and gold. Annual production is expected to reach 240,000 tons of ore, which will be milled at the nearby Pyhäsalmi concentrator.<sup>7</sup>

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<sup>1</sup>Mining Journal. Scrap Zinc Recovery. V. 327, No. 8400, Oct. 18, 1996, p. 310.

<sup>2</sup>The Mining Record. Full Production At Greens Creek Projected For First Quarter Of '97. V. 107, No. 44, Oct. 30, 1996, p. 5.

<sup>3</sup>American Metal Market. Noranda Exec Touts Zinc Comeback Plan. V. 104, No. 208, Oct. 25, 1996, p. 2.

<sup>4</sup>\_\_\_\_\_. Big River Sets Growth Plans. V. 104, No. 204, Oct. 16, 1996, p. 4.

<sup>5</sup>Metal Bulletin. "Depressed Prices" Force Asarco to Close Leadville. No.

8124, Oct. 28, 1996, p. 11.

<sup>6</sup>Platt's Metals Week. Atlas Completes Bolivian Deal. Oct. 14, 1996, p. 3.

<sup>7</sup>Metal Bulletin. "In Brief." No. 8118, Oct. 7, 1996, p. 10.

#### **Publications on the Internet**

Monthly, quarterly, and annual Minerals Information publications are now available through the World Wide Web (www). These publications include Mineral Commodity Summaries, Minerals Yearbook, Mineral Industry Surveys, and Metal Industry Indicators. To access Minerals Information publications, visit the Minerals Information home page at <http://minerals.er.usgs.gov/minerals>.

TABLE 1  
SALIENT ZINC STATISTICS 1/

(Metric tons)

	1995 p/			1996			
	Jan.-Oct.	October	Jan.-Dec.	August	September	October	Jan.-Oct.
Production:							
Mine, recoverable zinc	505,000 r/	51,200 r/	601,000	48,000	46,800 r/	46,000	492,000
Smelter, refined zinc	305,000 r/	29,200 r/	363,000	27,400	30,800	32,300	303,000
Oxide, (gross weight)	108,000 r/	11,200 r/	130,000	9,870	10,100 r/	11,100	106,000
Consumption:							
Refined zinc, reported	596,000 r/	57,000 r/	638,000	53,000	51,800 r/	54,300	542,000
Ores e/ 2/	2,000	200	2,400	200	200	200	2,000
Zinc-base scrap e/ 2/	100,000	10,000	120,000	10,000	10,000	10,000	100,000
Copper-base scrap e/ 2/	110,000	11,000	132,000	11,000	11,000	11,000	110,000
Aluminum-and magnesium-base scrap e/ 2/	700	70	840	70	70	70	700
Total e/	809,000 r/	78,300 r/	893,000	74,300	73,100 r/	75,500	755,000
Apparent consumption, metal 3/	1,050,000	96,500 r/	1,240,000	94,700 r/	120,000 r/	106,000	987,000
Stocks of slab zinc, end of period:							
Producer 4/	XX	7,200 r/	XX	9,920 r/	11,100 r/	11,900	XX
Consumer 5/	XX	39,600 r/	XX	39,200	38,600	36,400	XX
Merchant	XX	9,690	XX	1,350	4,130	2,860	XX
Total	XX	56,500 r/	XX	50,500 r/	53,800 r/	51,200	XX
Shipments of slab zinc from Government stockpile	8,060	--	14,300	3,050	2,730	5,730	18,800
Imports for consumption:							
Slab zinc	732,000	68,800	856,000	63,000	88,200	NA	599,000 6/
Oxide (gross weight)	40,600	4,860	49,100	4,470	4,820	NA	43,100 6/
Ore and concentrate (zinc content)	10,200	475	10,300	4,890	2,310	NA	8,700 6/
Exports:							
Slab zinc	2,970	83	3,080	246	191	NA	1,520 6/
Waste and scrap (zinc content)	46,500	4,430	55,900	2,880	2,990	NA	35,500 6/
Ore and concentrate (zinc content)	402,000	15,900	424,000	96,600	34,900	NA	258,000 6/
Oxide (gross weight)	5,710	863	7,090	499	397	NA	4,540 6/
Price:							
Platt's Metals Week North American Special							
High Grade, average, cents per pound	53.79	49.68	55.83	51.26	51.39	51.52	50.72

e/ Estimated. p/ Preliminary. r/ Revised. NA Not available. XX Not applicable.

1/ Data are rounded to three significant digits, except prices; may not add to totals shown.

2/ Recoverable zinc content.

3/ Smelter production + imports - exports + shipments from Government stockpile + beginning stocks - ending stocks.

4/ Data from American Bureau of Metal Statistics and U.S. Geological Survey.

5/ In addition to stocks reported by consumers on a monthly basis, about 10,000 tons was estimated to be held by companies reporting on an annual basis only.

6/ Includes data through September only. October data not available at time of publication.

TABLE 2  
MINE PRODUCTION OF RECOVERABLE ZINC IN THE UNITED STATES 1/

(Metric tons)

State	1995 p/			1996			
	Jan.-Oct. r/	October r/	Jan.-Dec.	August	September r/	October	Jan.-Oct.
Missouri	40,300	3,010	47,000	W	W	W	W
Other States 2/	465,000	48,200	554,000	48,000	46,800	46,000	492,000
Total	505,000	51,200	601,000	48,000	46,800	46,000	492,000

p/ Preliminary. r/ Revised. W Withheld to avoid disclosing proprietary data; included in "Other States."

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Includes Alaska, Colorado, Idaho, Illinois, Montana, New York, Oregon, Tennessee, and State indicated by "W."

TABLE 3  
SLAB ZINC AND ZINC OXIDE 1/ AT DOMESTIC SMELTERS 2/

(Metric tons)

Month	Stocks at beginning of month		Production		Shipments		Stocks at end of month	
	Slab Zinc r/ 3/	Zinc Oxide	Slab Zinc	Zinc Oxide	Slab Zinc	Zinc Oxide	Slab Zinc r/ 3/	Zinc Oxide
1995: p/								
Jan.-Oct.	XX	XX	305,000	108,000	309,000	111,000	XX	XX
October	7,650	6,980	29,200	11,200	29,600	11,300	7,200	6,800
November	7,200	6,800	28,000	11,100	28,900	11,300	6,300	6,620
December	6,300	6,620	30,000	10,900	29,200	10,500	7,120	6,990
Total	XX	XX	363,000	130,000	368,000	132,000	XX	XX
1996:								
January	7,120	6,990	31,300	10,700	29,400	12,900	8,990	4,760
February	8,990	4,760	29,400	10,400	29,800	12,000	8,610	3,100
March	8,610	3,100	30,400	12,200	31,100	11,500	7,860	3,740
April	7,860	3,750	29,800	11,400	29,400	11,600	8,280	3,530
May	8,280	3,530	30,500	11,200	30,800	11,400	8,040	3,390
June	8,040	3,390	30,400	10,300	30,300	9,920	8,130	3,800
July	8,130	3,800	30,800	9,100	30,100	9,560	8,830	3,340
August	8,830	3,340	27,400	9,870	26,300	10,200	9,920	3,060
September	9,920	3,060	30,800	10,100 r/	29,700	9,830 r/	11,100	3,210
October	11,100	3,320	32,300	11,100	31,400	11,100	11,900	3,260
Jan.-Oct.	XX	XX	303,000	106,000	298,000	110,000	XX	XX

p/ Preliminary. r/ Revised. XX Not applicable.

1/ Gross weight; excludes impure zinc oxide produced from other processes.

2/ Data are rounded to three significant digits; may not add to totals shown.

3/ Includes stocks held at locations other than smelters.

Sources: American Bureau of Metal Statistics and U.S. Geological Survey.

TABLE 4  
ESTIMATED DISTRIBUTION 1/ OF ZINC OXIDE SHIPMENTS BY INDUSTRY 2/ 3/

(Metric tons, gross weight)

Industry	1995 p/			1996			
	October r/	Jan.-Oct. r/	Jan.-Dec.	August	September r/	October	Jan.-Oct.
Agriculture	W	W	W	W	W	W	W
Ceramics	345	2,770	3,390	433	367	465	4,820
Chemicals	2,410	24,900	30,000	2,030	2,040	2,460	23,800
Paints	376	3,950	4,790	271	311	322	3,700
Photocopying	W	W	W	W	W	W	W
Rubber	7,530	71,100	85,300	7,040	6,710	7,420	72,900
Other	671	5,620	8,900	379	401	454	4,780
Total	11,300	108,000	132,000	10,200	9,830	11,100	110,000

p/ Preliminary. r/ Revised. W Withheld to avoid disclosing company proprietary data; included with "Other."

1/ Distribution of U.S. producers only. Imports excluded because distribution by industry cannot be distinguished.

2/ May include in-house consumption.

3/ Data are rounded to three significant digits; may not add to totals shown.

TABLE 5  
APPARENT CONSUMPTION OF SLAB ZINC ACCORDING TO INDUSTRY USE AND PRODUCT 1/

(Metric tons)

Industry and product	1995 p/			1996			
	October r/	Jan.-Oct. r/	Jan.-Dec.	August	September r/	October	Jan.-Oct.
Galvanizing:							
Sheet and strip	36,300	394,000	490,000	38,800 r/	49,300	42,500	399,000
Other	11,600	133,000	168,000	12,000 r/	17,600	14,600	130,000
Total	48,000	527,000	658,000	51,000 r/	66,900	57,100	529,000
Brass and bronze	11,500	131,000	165,000	12,700 r/	17,100	14,000	130,000
Zinc-base alloy	19,000	208,000	250,000	16,800 r/	19,300	19,000	171,000
Other uses 2/	18,000	188,000	166,000	14,200	16,800	15,800	158,000
Total apparent consumption	96,500	1,050,000	1,240,000	94,700 r/	120,000	106,000	987,000

p/ Preliminary. r/ Revised.

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Includes zinc used in making zinc dust, wet batteries, desilvering lead, powder, alloys, anodes, chemicals, castings, light metal alloys, zinc oxide, and miscellaneous uses not elsewhere specified.

TABLE 6  
AVERAGE MONTHLY ZINC PRICES

Month	North American Special High Grade cents/lb.	LME cash		Sterling exchange rate dollars/£
		cents/lb.	£/M.T.	
1995:				
October	49.68	44.41	620.52	1.577929
November	52.02	46.75	659.65	1.562476
December	50.87	46.18	660.89	1.540505
Year average	55.83	46.82	656.59	1.572016
1996:				
January	50.59	46.22	666.59	1.528771
February	50.69	46.98	674.37	1.535960
March	51.24	48.26	696.72	1.527062
April	50.61	47.42	689.57	1.516041
May	50.50	46.98	683.57	1.515236
June	49.57	45.75	654.20	1.541590
July	49.87	45.36	643.95	1.553005
August	51.26	45.67	649.68	1.549882
September	51.39	45.37	641.53	1.559290
October	51.52	45.50	632.34	1.586314

Source: Platt's Metals Week.

TABLE 7  
U.S. EXPORTS OF ZINC 1/

Material	1995		1996			
	Quantity (metric tons)	Value (thousands)	September		Jan.-Sept. 2/	
			Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)
Slab zinc	3,080	\$4,340	191	\$181	1,520	\$1,780
Ore and concentrate (zinc content)	424,000	201,000	34,900	16,800	258,000	119,000
Waste and scrap (zinc content)	55,900	36,100	2,990	2,330	35,500	23,200
Powders, flakes, and dust (zinc content)	8,840	15,800	303	656	8,940	17,200
Oxide (gross weight)	7,090	9,110	397	1,510	4,540	7,770
Chloride	1,690	1,250	134	89	1,210	989
Sulfate	4,210	2,260	378	211	3,680	2,090
Compounds, other	1,690	4,350	30	190	1,090	3,780

1/ Data are rounded to three significant digits.

2/ October data not available at time of publication.

Source: Bureau of the Census.

TABLE 8  
U.S. IMPORTS FOR CONSUMPTION OF ZINC 1/

Material	1995		1996			
	Quantity (metric tons)	Value (thousands)	September		Jan.-Sept. 2/	
			Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)
Slab zinc	856,000	\$903,000	88,200	\$92,100	599,000	\$635,000
Ore and concentrate (zinc content)	10,300	4,380	2,310	864	8,700	3,560
Waste and scrap (gross weight)	42,300	19,700	1,780	846	23,500	9,850
Powders, flakes, and dust (gross weight)	11,700	20,400	1,060	1,890	7,840	13,300
Oxide (gross weight)	49,100	54,200	4,820	4,750	43,100	43,500
Chloride	2,450	2,370	147	135	1,670	1,500
Sulfate	5,400	3,820	210	156	3,220	2,300
Compounds, other	1,850	2,490	15	26	977	1,000
Dross, ashes, and fume (zinc content)	10,900	8,260	1,590	1,040	11,600	8,090

1/ Data are rounded to three significant digits.

2/ October data not available at time of publication.

Source: Bureau of the Census.

TABLE 9  
U.S. IMPORTS OF ZINC, BY TYPE OF MATERIAL AND COUNTRY 1/

(Metric tons)

Material and country	General imports			Imports for consumption		
	1995	1996		1995	1996	
		September	Jan.-Sept. 2/		September	Jan.-Sept. 2/
Ore and concentrate:						
(zinc content)						
Mexico	7,030	825	3,990	7,030	825	3,960
Peru	5,540	1,550	6,310	3,310	1,480	4,740
Other	463	(3/)	230	15	(3/)	(3/)
Total	13,000	2,370	10,500	10,300	2,310	8,700
Blocks, pigs, or slab:						
Australia	15,400	--	6,970	18,200	--	7,350
Brazil	52,900	4,990	26,500	67,800	4,990	26,500
Canada	468,000	39,700	389,000	469,000	39,700	389,000
Finland	13,500	7,270	11,300	13,500	7,270	11,300
Mexico	99,200	7,450	71,100	99,200	7,450	71,100
Peru	21,500	1,700	21,700	21,500	1,700	21,700
Russia	12,800	3,440	10,700	12,800	3,440	10,700
Spain	109,000	14,300	40,000	98,000	19,100	49,500
Other	55,300	4,560	11,200	53,700	4,560	11,200
Total	848,000	83,400	589,000	856,000	88,200	599,000
Dross, ashes, & fume (content)	10,900	1,590	11,600	10,900	1,590	11,600
Grand total	872,000	87,400	611,000	877,000	92,100	619,000
Other (gross weight):						
Waste and scrap	42,300	1,780	23,500	42,300	1,780	23,500
Sheets	332	1,060	10,700	332	1,070	10,700
Dust, powder, flakes	11,700	1,060	7,840	11,700	1,060	7,840

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ October data not available at time of publication.

3/ Less than ½ unit.

Source: Bureau of the Census.

TABLE 10  
U.S. IMPORTS FOR CONSUMPTION OF ZINC OXIDE, BY COUNTRY 1/

(Metric tons)

Country	1996		
	1995	September	Jan.-Sept. 2/
Canada	24,800	2,880	21,100
China	3,040	--	2,070
Mexico	16,600	1,720	16,600
Other	4,640	226	3,290
Total	49,100	4,820	43,100

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ October data not available at time of publication.

Source: Bureau of the Census.